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CARNOSINE – A NEW THERAPEUTIC OPTION IN DIABETIC NEPHROPATY

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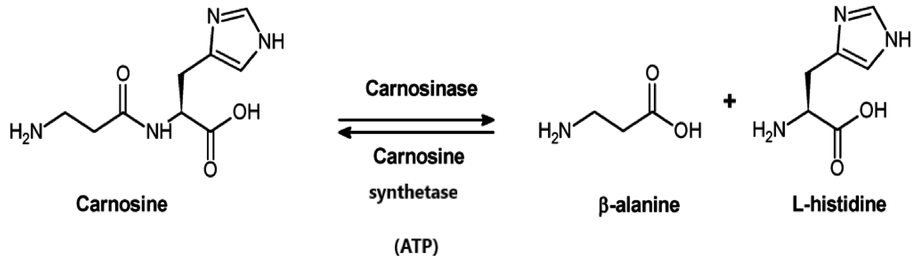
Introduction

Highly concentrated in the brain, heart, liver, kidneys and muscles, carnosine is a natural antioxidant and anti-glycation molecule which is quickly broken down by our body's enzyme carnosinase. Because of its anti-glycation properties, carnosine is researched as a way to combat the dangers of insulin resistence and high blood sugars in both those with pre and established diabetes.



Keywords

Diabetic nephropaty, carnosine, AGE, diabetes mellitus

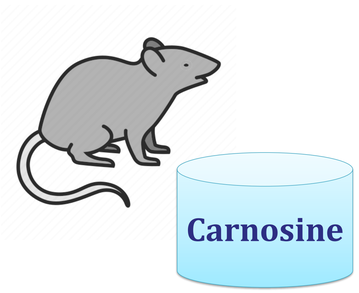
Purpose

To study the biochemical mechanisms of carnosine action and to appreciate the benefits of carnosine therapy as a potential treatment option in preventing kidney-related complications in diabetes

Material and methods

The basis of this work is a comprehensive literature synthesis including the analysis of multiple academic reports, studies and clinical trials from 10 bibliographic sources published in electronic libraries like PubMed, Medscape and Hinari.

Results



After 24 weeks

- Reduced urine albumin creatinine ratio
- Reduced basement membrane thickening
- Protection from glomerular degeneration and podocyte number preserved

Carnosine

- ↓ **AGE** levels by interacting with reactive intermediate compounds (glyoxal and methylglyoxal)
- ↑ **insulin secretion** and skeletal muscle glucose uptake
- ↑ **glutathione peroxidase** activity in kidney that helps to detoxify methylglyoxal
- ↓ **oxidative stress** by decreasing advanced oxidation protein products

Conclusions

In rodent models of diabetes type 1 and 2, carnosine treatment helped to reduce AGE formation, oxidative and carbonyl stress, to improve glucose metabolism and it concluded in an amelioration of the structural and functional renal demage.